

## **Arkema Facility - Harvey Response**

Crosby, TX

Arkema Inc.

September 2, 2017

Project #109489 Summary

## 1.0 Introduction

As a result of flooding events related to Hurricane Harvey, the Arkema facility located in Crosby, TX suffered a loss of power and failure on refrigeration of manufacturing process. The loss of temperature control resulted in degradation and heating of organic peroxides, with the potential of creating a fire. As a precautionary measure, local authorities established a 1.5-mile radius evacuation zone around the facility.

On August 31, 2017, the Center for Toxicology and Environmental Health, LLC (CTEH®) was contacted by Arkema Inc. (Arkema) to initiate air monitoring and sampling around the community areas outside of the evacuation zone perimeter. This submittal summarizes the results of real-time air monitoring conducted by CTEH® personnel from 06:00 on September 1, 2017 to 06:00 on September 2, 2017. A map of the site location is provided in **Attachment A**.

## 2.0 Real-time Air Monitoring

All real-time air monitoring instrumentation was calibrated per the manufacturer's recommendations prior to air monitoring. Handheld, real-time air monitoring was conducted for benzene, cumene, atmosphere flammability (lower explosive limit - LEL), and volatile organic compounds (VOCs) using RAE Systems and Gastec instruments. Additionally, combustion byproducts potentially associated with fire smoke, such as particulate matter (PM<sub>2.5</sub>), nitrogen dioxide (NO<sub>2</sub>) and sulfur dioxide (SO<sub>2</sub>) were assessed. **Table 1** summarizes the data for all real-time air monitoring readings recorded in Crosby, TX from 06:00 on September 1, 2017 through 06:00 on September 2, 2017. Maps of real-time air monitoring locations are provided as **Attachment B**.

**Table 1 Real-time Handheld Air Monitoring Readings**  
**06:00 September 1, 2017 – 06:00 September 2, 2017**

Analyte	Instrument	Number of Readings	Number of Detections	Range of Detections*
Benzene	UltraRAE	31	0	< 0.025 ppm
	Gastec Tube 121L	7	0	< 0.05 ppm
CO	MultiRAE Plus	40	0	< 1.0 ppm
Cumene	Gastec Tube 122L	2	0	< 50 ppm
LEL	MultiRAE Plus	2	0	< 1.0 %
NO <sub>2</sub>	MultiRAE Plus	14	0	< 0.1 ppm
	Gastec Tube 9L	1	0	< 0.1 ppm
PM <sub>2.5</sub>	AM510	170	170	0.013 - 0.065 mg/m <sup>3</sup>
	Dusttrak	68	68	0.012 - 0.112 mg/m <sup>3</sup>
SO <sub>2</sub>	MultiRAE Plus	54	0	< 0.1 ppm
VOCs	MultiRAE Plus	229	0	< 0.1 ppm

\*If detections were not observed, the instrument detection limit is listed in this column.

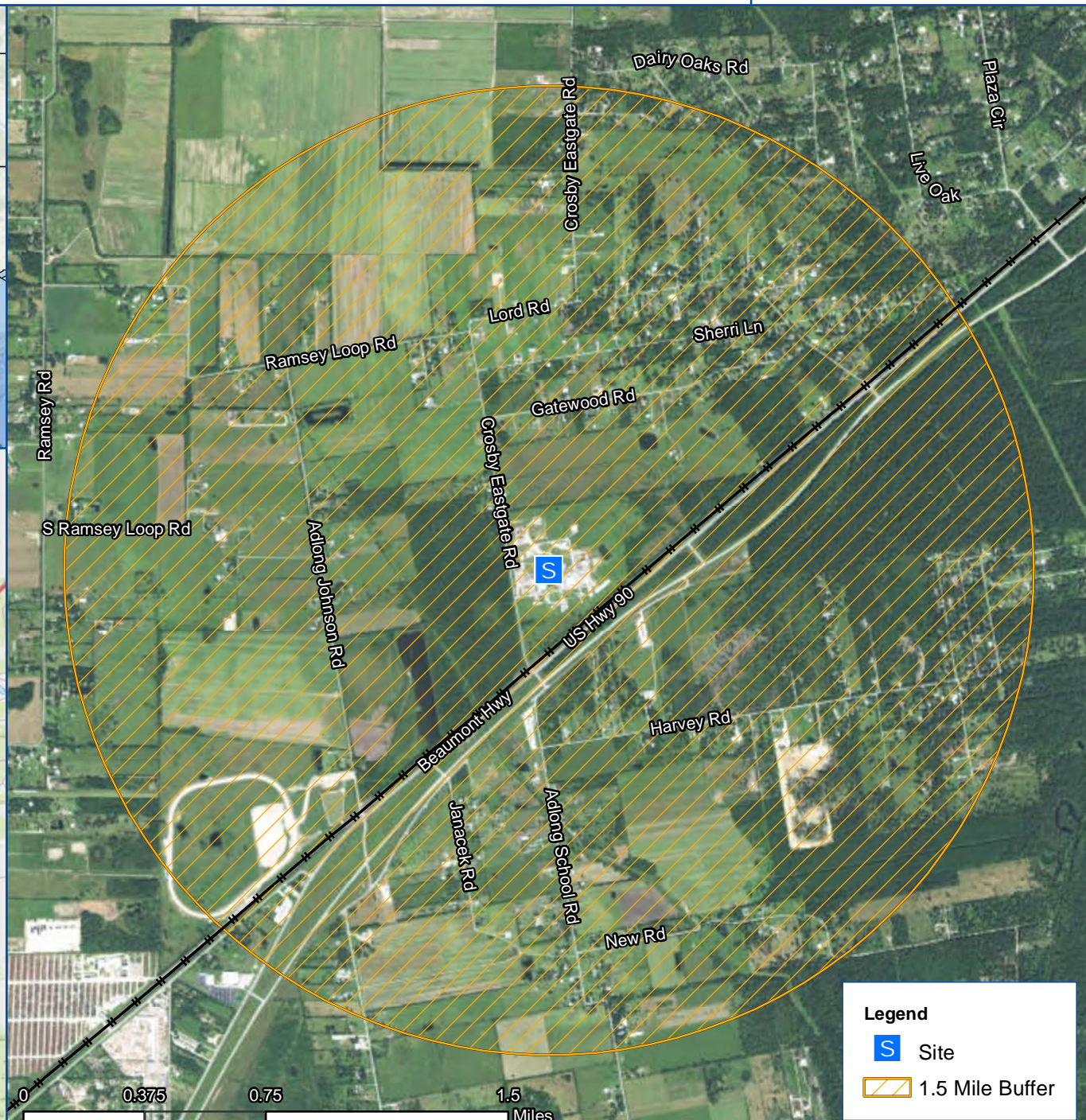
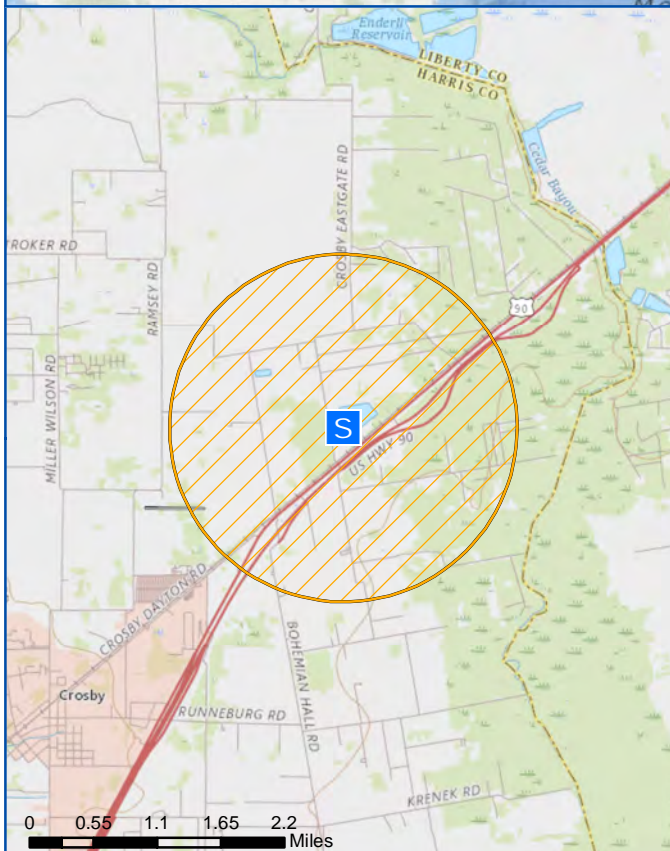
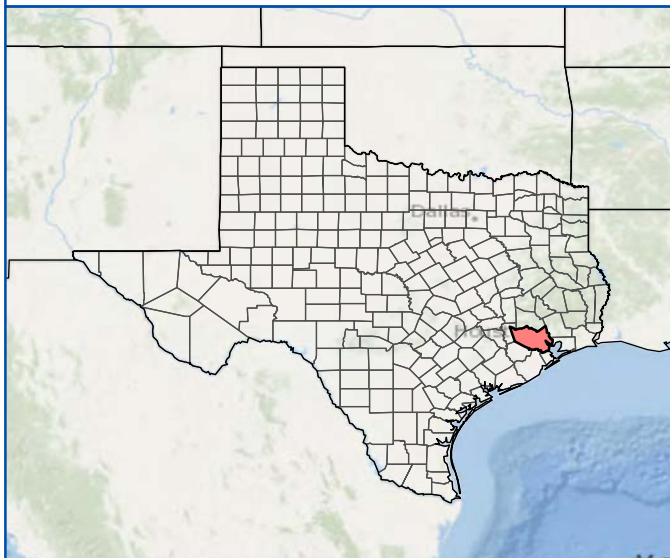
### 3.0 Analytical Air Sampling

To supplement real-time air monitoring, CTEH® deployed areas along the perimeter of the evacuated area within the community. Evacuated canister (Minican™) samplers were regulated to collect air evenly over a 24-hr period. Analytical air samples will be submitted to SGS Galson Laboratories, an AIHA-accredited laboratory, for analysis using EPA Method TO-15. A map highlighting the analytical air sampling locations is provided as **Attachment C**. Analytical Air Sampling Results will be reported upon receipt from the laboratory.



# **Attachment A**

## **Site Location Map**





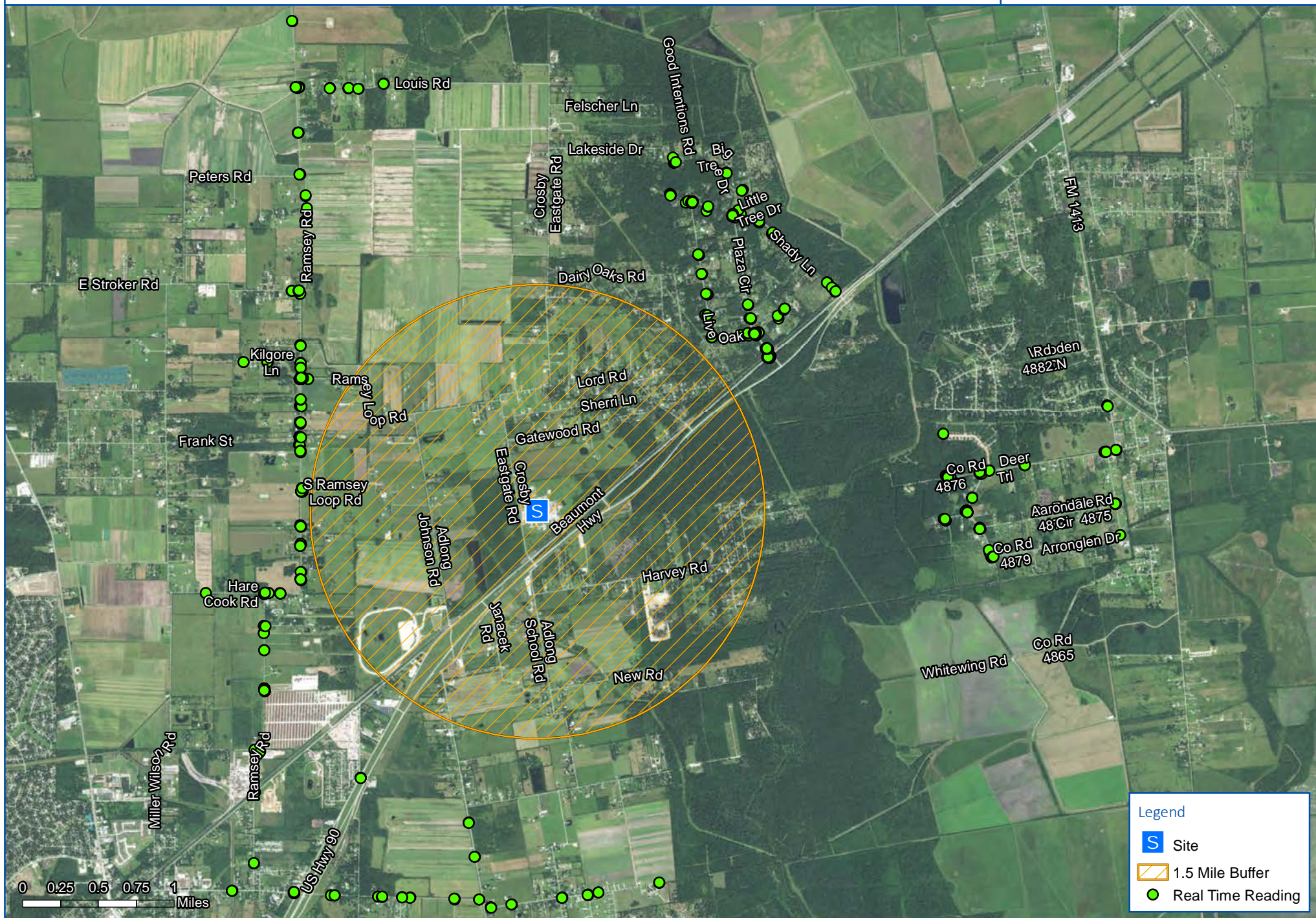
**Legend**

-  Site
-  1.5 Mile Buffer




# **Attachment B**

## **Handheld Real-time Air Monitoring Locations**

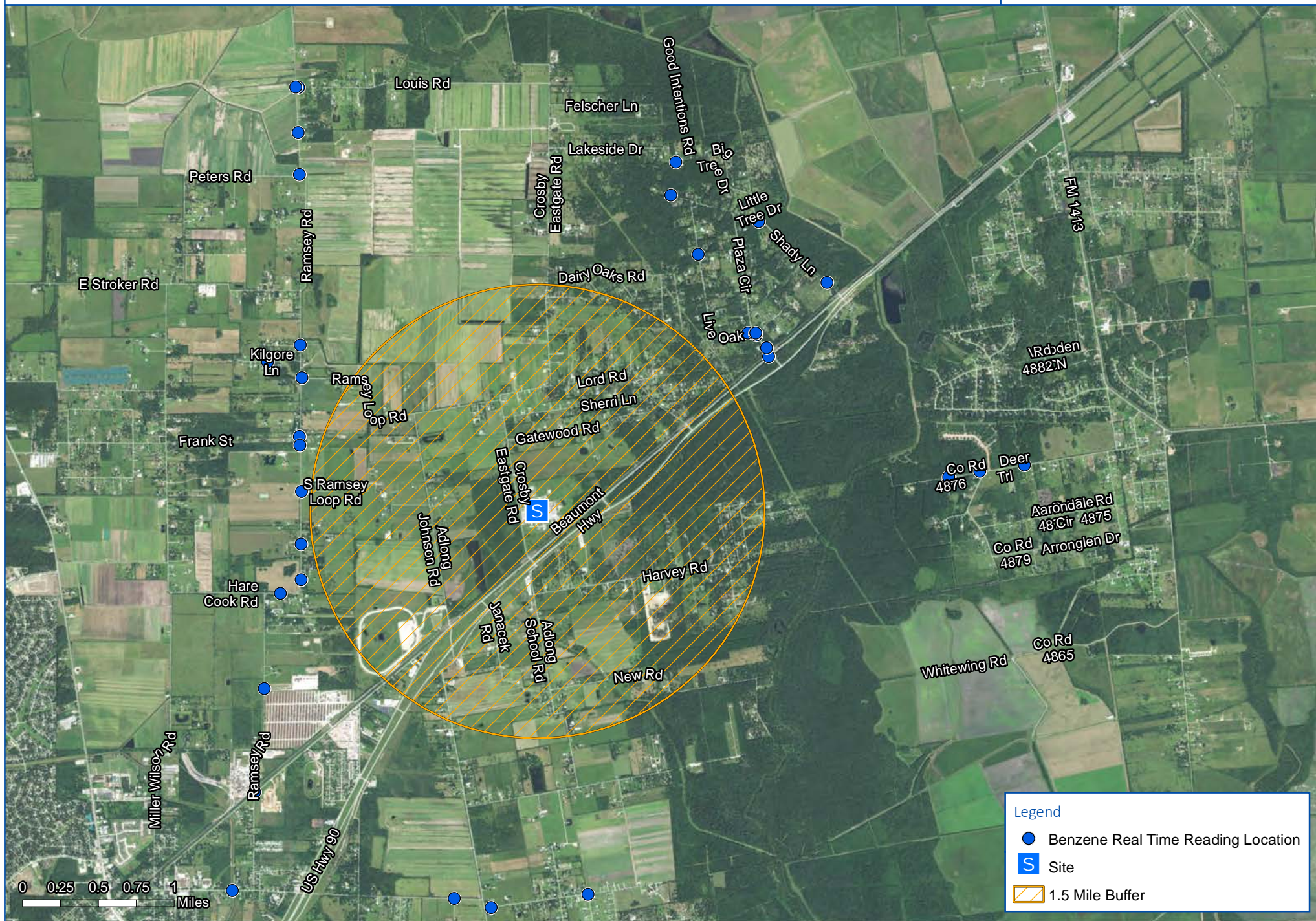




Legend

-  Site
-  1.5 Mile Buffer
-  Real Time Reading

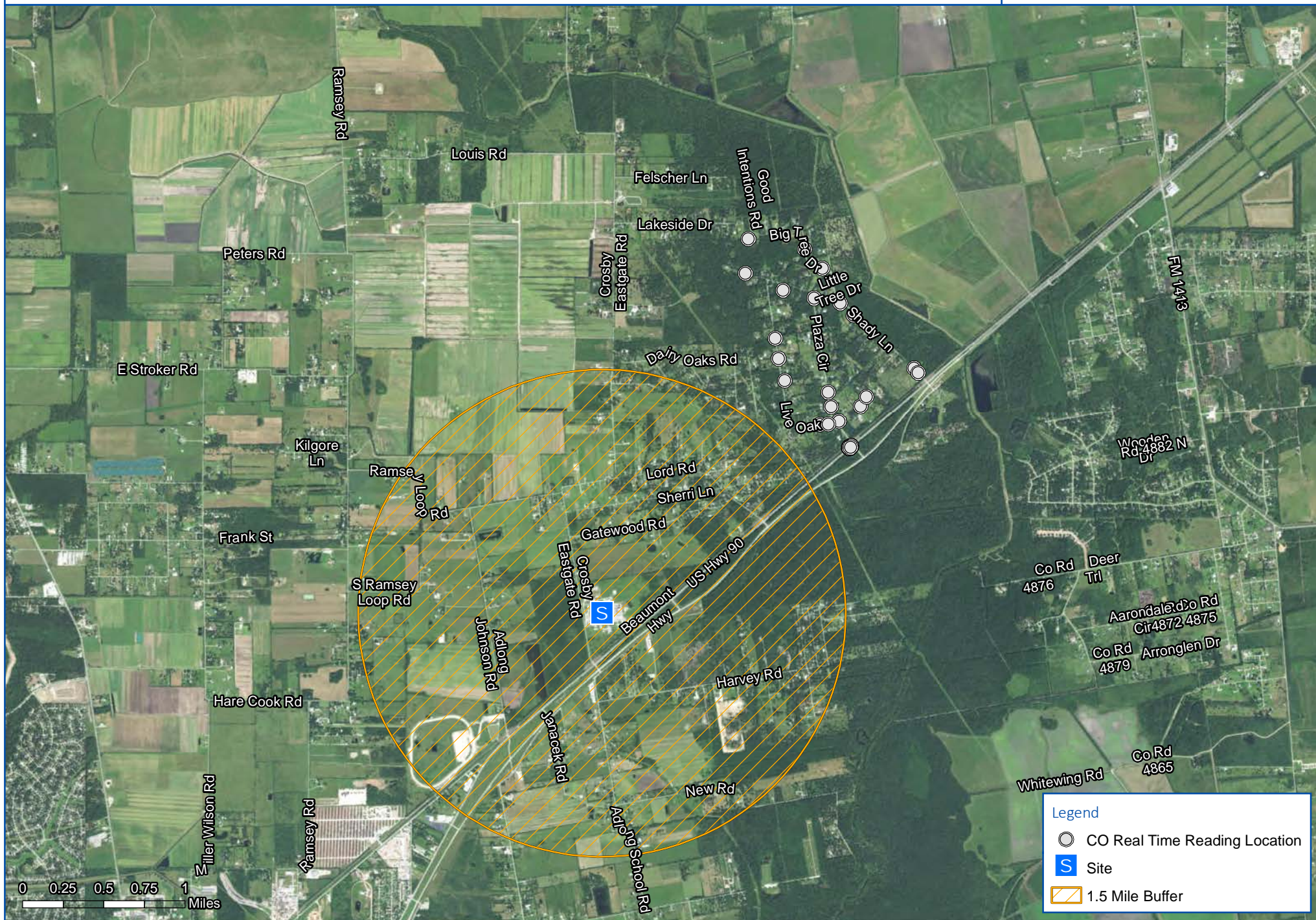




Legend

- Benzene Real Time Reading Location
- S Site
- 1.5 Mile Buffer

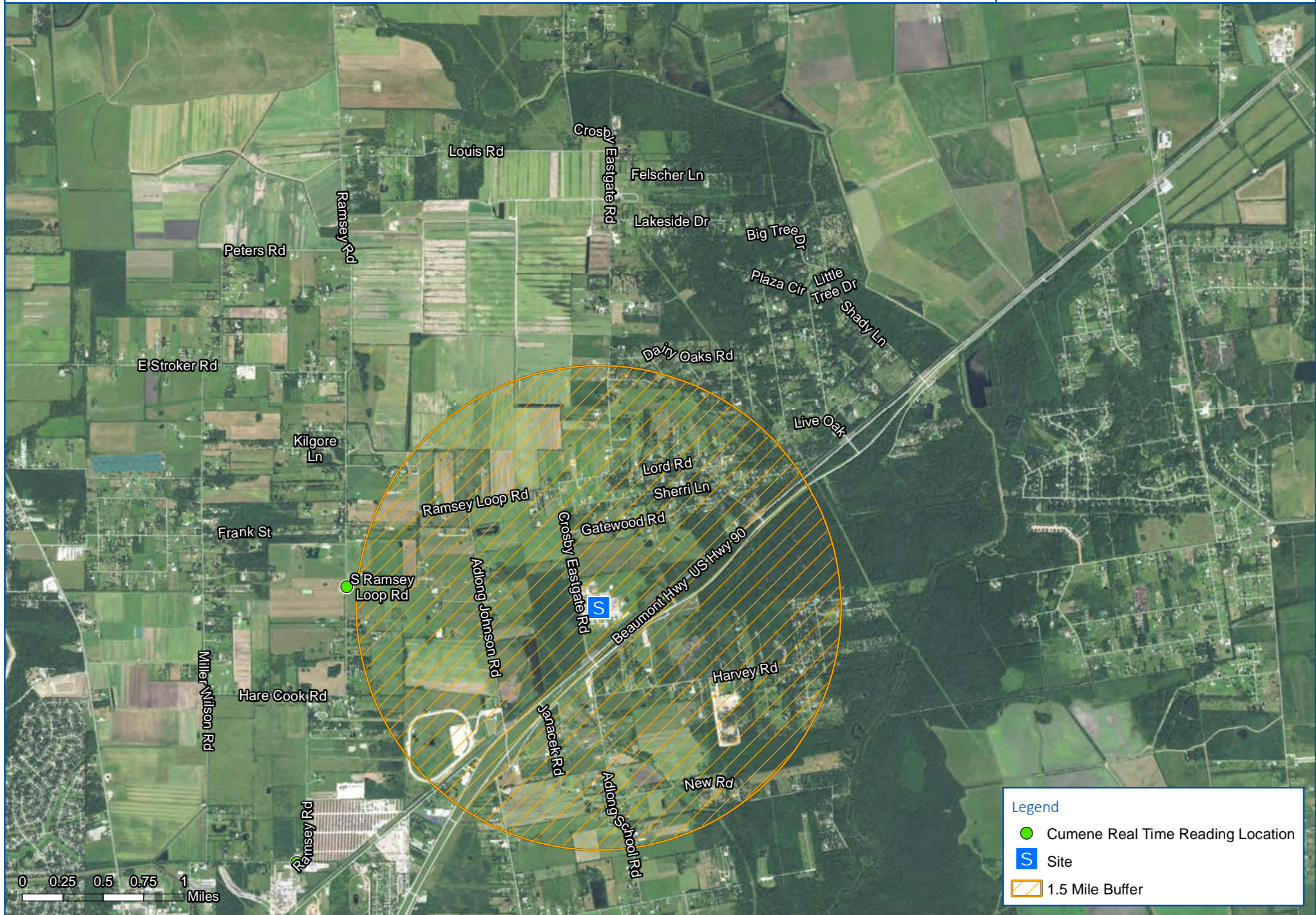




**Legend**

- CO Real Time Reading Location
- Site
- 1.5 Mile Buffer

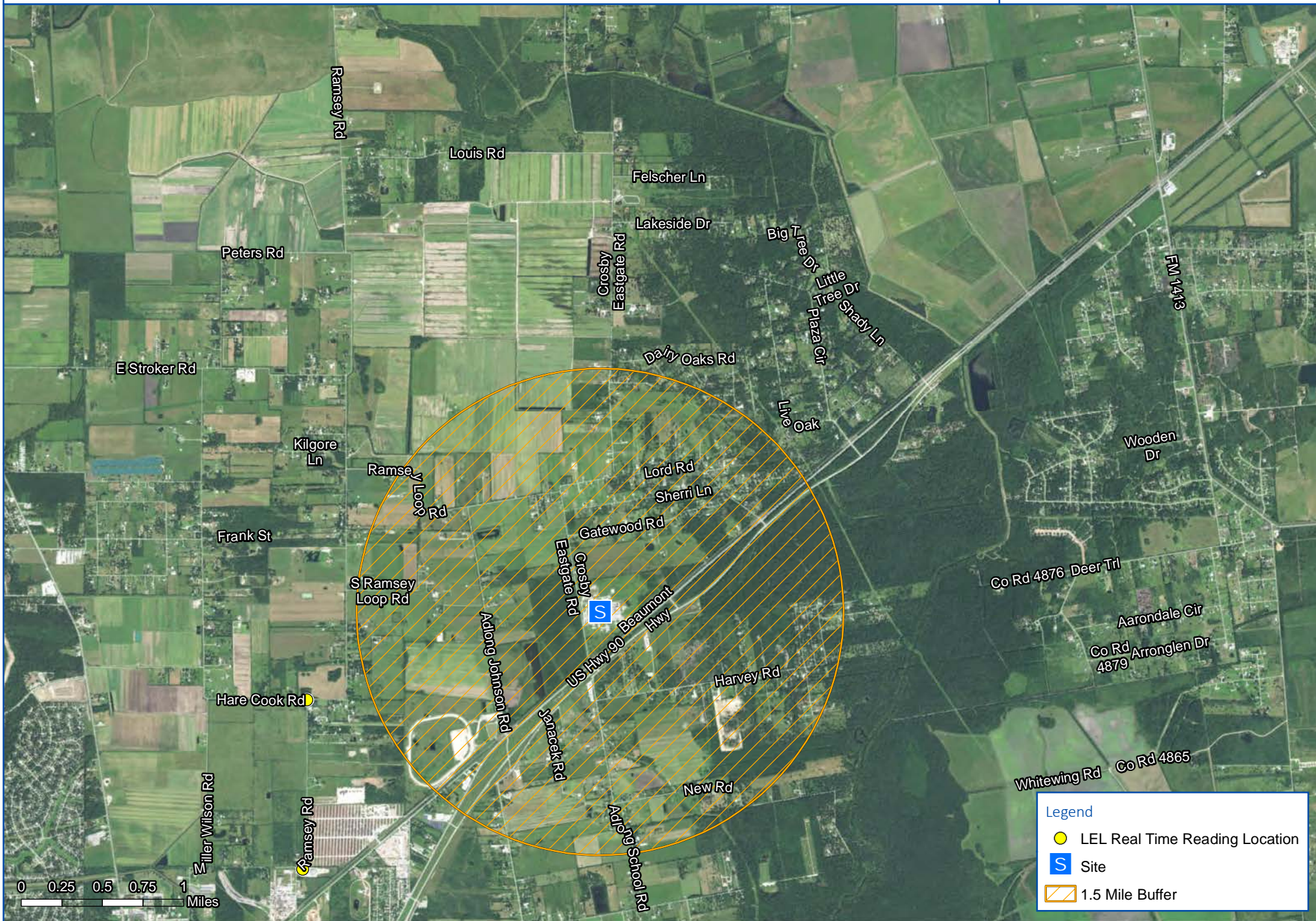




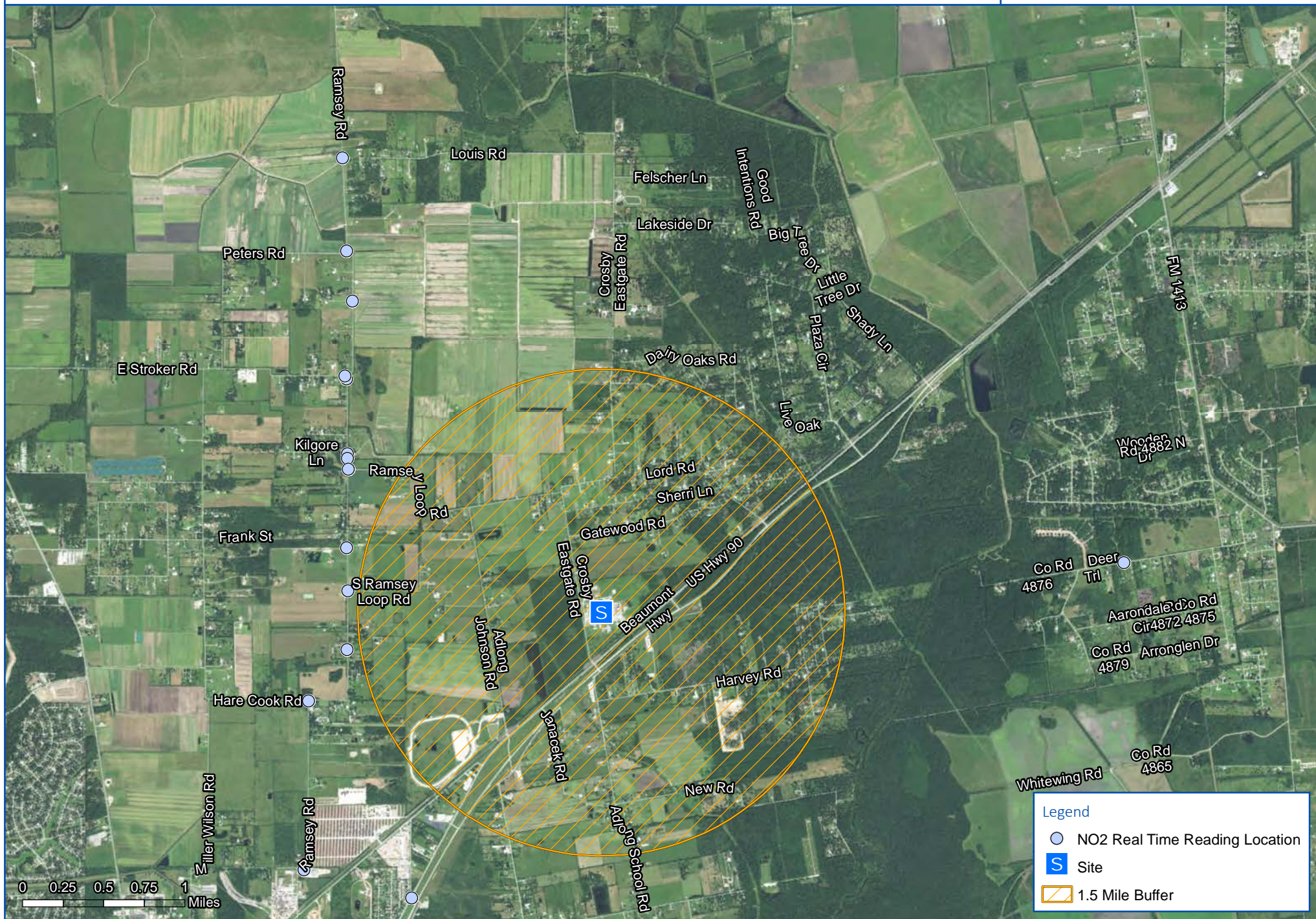
**Legend**

- Cumene Real Time Reading Location
- S Site
- 1.5 Mile Buffer





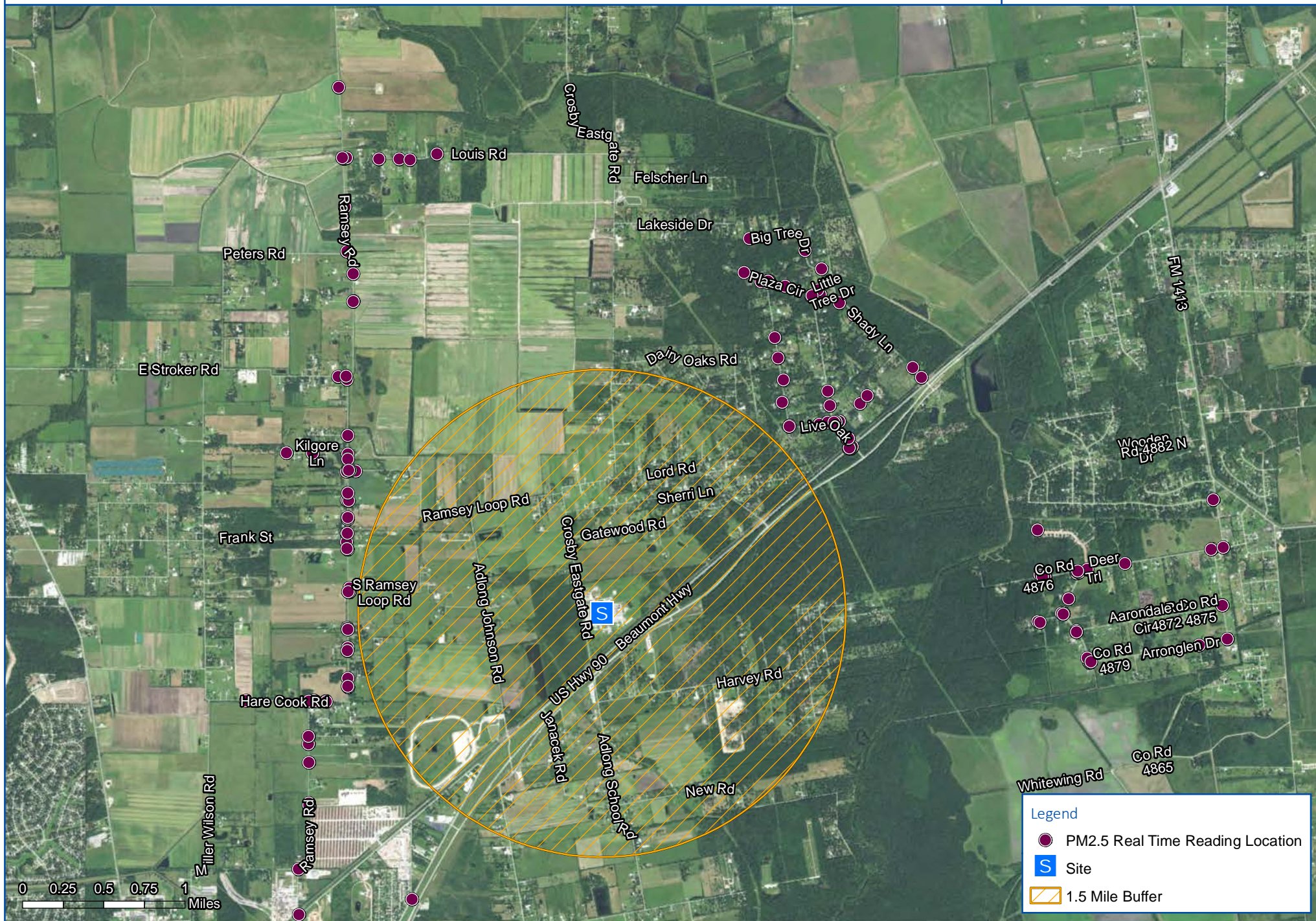




**Legend**

- NO2 Real Time Reading Location
- S** Site
- 1.5 Mile Buffer

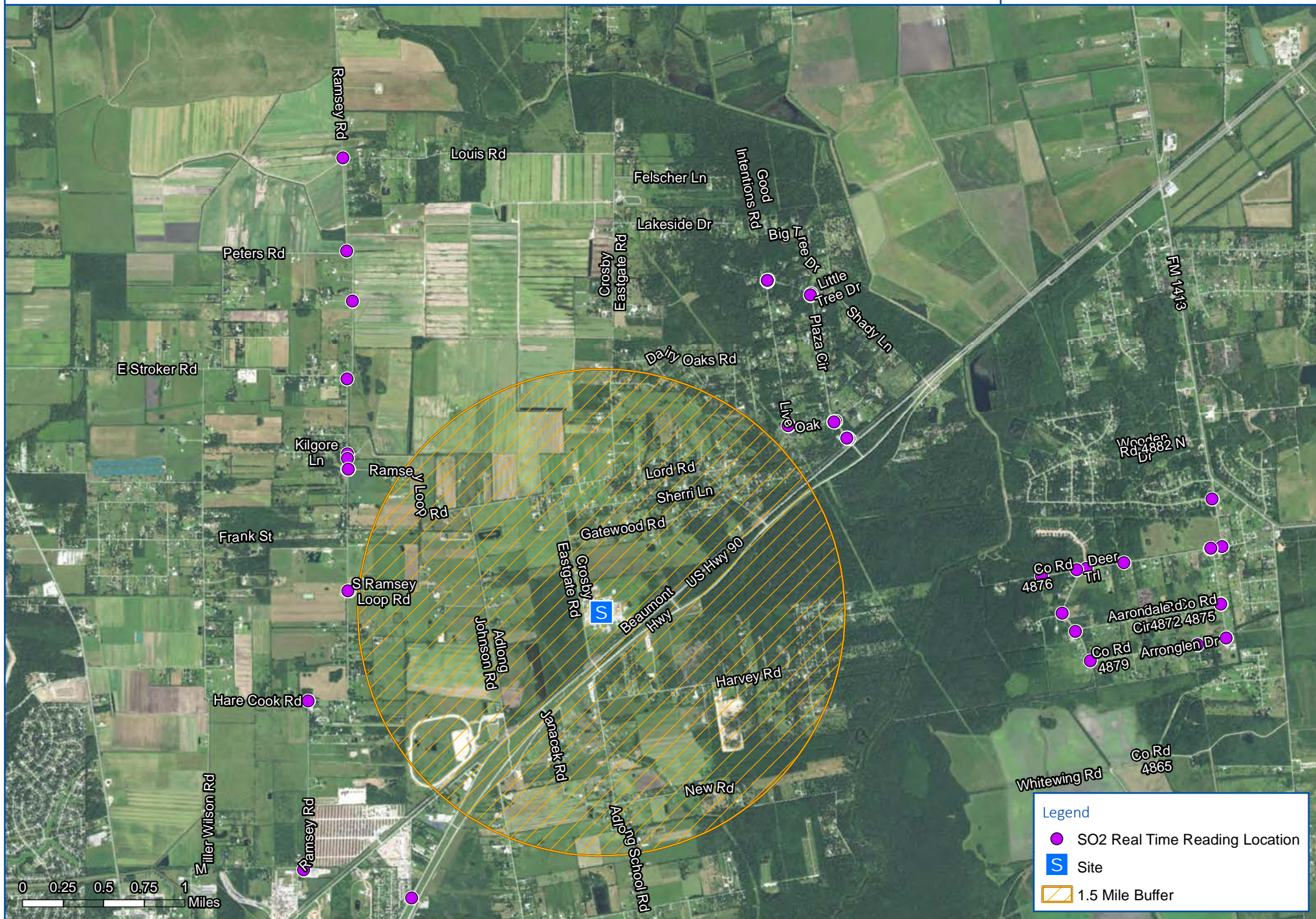




**Legend**

- PM2.5 Real Time Reading Location
- S Site
- 1.5 Mile Buffer

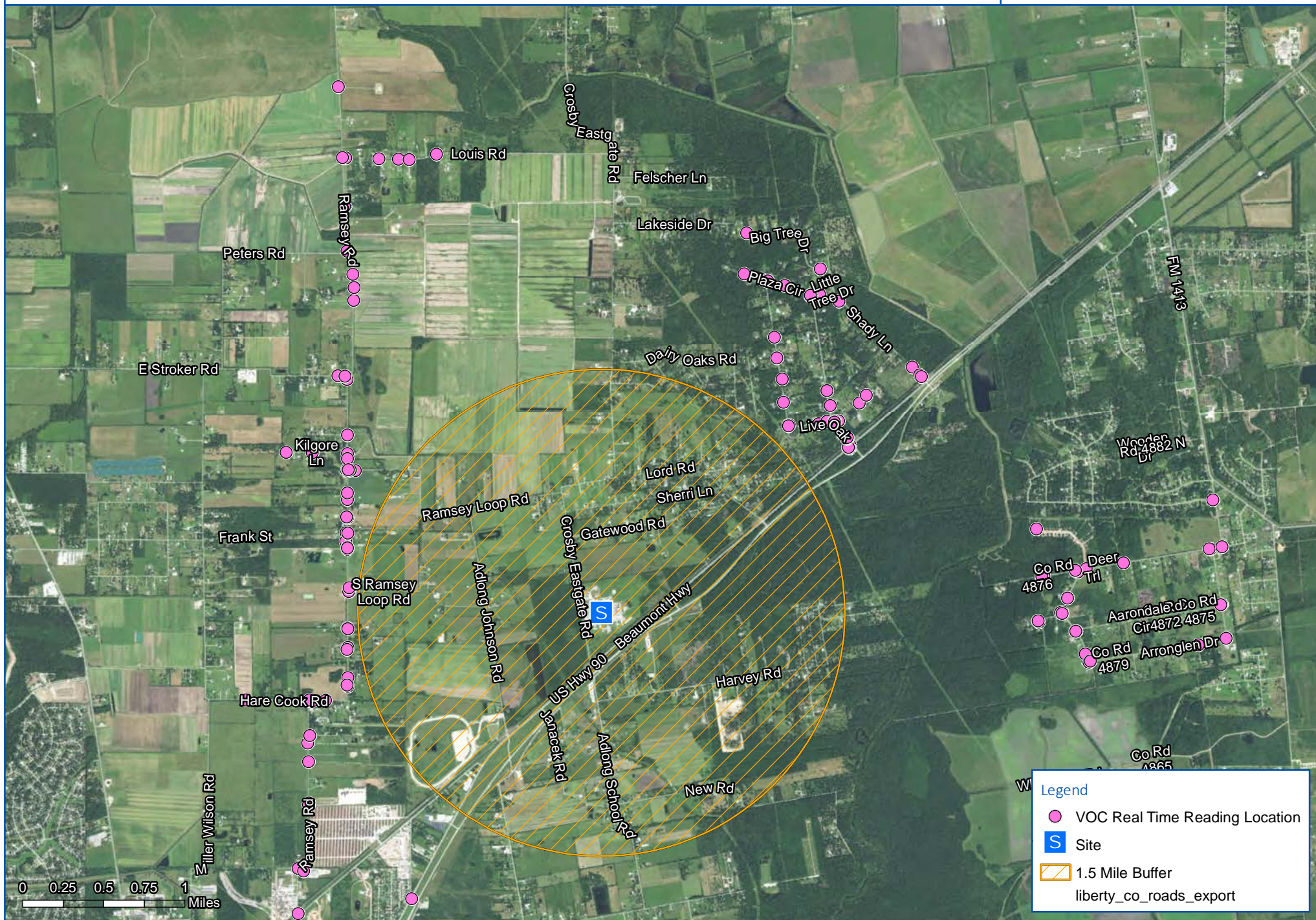




**Legend**

- SO2 Real Time Reading Location
- Site
- 1.5 Mile Buffer





# **Attachment C**

## **Map of Analytical Air Sampling Locations**







# **Attachment D**

## **KHPY Windrose**

**(Highland Park Airport - 12.5 miles SSE of Site)**



Weather Station: KHPY  
Date: 2017-09-01

